CHANGES TO THE ADMINISTRATIVE RULES FOR WATER WELL DRILLERS

L Effective January 1, 2001 7

(The following is a summary of changes to the Administrative Rules For Water Well Drillers. New rule booklets will be sent to all licensed drillers in January 2001 or as soon as they are published)

Section R655-4-1. Purpose, Scope and Exclusions

$ There were no changes to this section, however, it was reorganized.

R655-4-2. Definitions

$ Several definitions were re-worded for clarity. Some definitions included regulations or construction standards which were moved from the definition to the appropriate section of the rules. Some definitions were added because new terms were included in the rules.

Section R655-4-3. Licenses and Registrations

$ The information in this section was taken from several sections of the old rules. It was re-written, re-organized, and re-numbered to clarify the requirements.

$ The following requirements were added to obtain a new well drillers license in order to better ensure that applicants were qualified to obtain well drilling licenses

- < Provide documentation of at least 2 year of experience or 15 wells drilled by the applicant. Completion of classroom study may be substituted for some of the experience and drilled wells. There is no experience requirement listed in the existing rules, however, the ability to properly drill a well is mostly obtained through actual drilling experience.
- < Obtain a minimum scored of 70% on each of the required tests. The existing rules require an average score of 70% on the tests taken by the applicant, however, this would allow an applicant to obtain a license even if they failed one of the required tests.
- < Pass an oral examination. This was added because there are some aspects of well drilling ability that cannot be assessed through a written test.

$ Drill rig operators must be registered with the state before January 1, 2001. Under the existing rules, registration of drill rig operators is optional and voluntary. There are no operators who are currently registered with the state. There have been many instances noted where the well rig operator has been left in responsible charge of the well drilling operation with inadequate training from the well driller and the wells were not properly constructed. The new rules require registration so the state can ensure that anyone in responsible charge of constructing a water well is knowledgeable of the minimum construction standards. The requirements include:

- < Must be 18 years old
- < Must complete application and pay fee (same application fee as a drillers license)
- < Provide documentation of 6 months drilling experience.
- < Obtain a minimum score of 70% on the required tests.

- **$** Apprentices must be 18 years old and may be listed with the state by completing an application form. Apprentices are not mentioned in the current rules and this is voluntary and optional in the new rules. It is included in the new rules to allow apprentices to document their experience in preparation for being registered as a drill rig operator.

Section R655-4-4. Administrative Requirements and General Procedures

- **$** The information in this section was taken from several sections of the old rules. It was re-written, re-organized, and re-numbered to clarify the requirements.
- **$** The following changes were made to allow the Division of Water Rights to better track well drilling activity in the state.
  - < Start Cards must be telephoned in, FAXed in, or e-mailed in before starting to drill. The old rules allowed start cards to be mailed in. However, at times the start card was delayed in the mail and the well was completed before the Start Card was received.
  - < The well driller's license number OR company name (exactly as it appears on the license) must be displayed on the drilling rig. The existing rule requires the number to be displayed, however, the driller name is also adequate identification.
  - < When requested by the State Engineer, samples must be taken at the specified intervals and submitted in the sample bags provided. This has been requested of drillers in the past but was not included in the rules. It is included the formalize the process of collecting samples needed by the state engineer.
  - < An abandonment log form has been created which must be submitted on all wells that are abandoned and on all replacement wells even if the old well is not abandoned. In the past, well abandonments were reported on the official well driller report (well log) which often led to some confusion.

Section R655-4-5. Infractions of the Administrative Requirements and the Minimum Construction Standards

- **$** The information in this section was taken from several sections of the old rules. It was re-written, re-organized, and re-numbered to clarify the requirements. This section includes the enforcement rules and regulations that were part of the previous version of the Administrative Rules for Water Well Drillers.
- **$** This section also describes a record keeping system that will be set up by the Division of Water Rights to monitor infractions of the administrative rules and help determine when a hearing should be held concerning a driller=s license or drill rig operator=s registration. The enforcement efforts of the division will not change as a result of implementing this new section. Periodic visits will continue to be made as in the past, but this system will allow the division to keep track of infractions noted on the visits.

Section R655-4-6. Renewal of Well Driller=s License, Drill Rig Operator=s Registration, and Apprenticeship Listing.

- **$** The information in this section was taken from several sections of the old rules. It was re-written, re-organized, and re-numbered to clarify the requirements.
- **$** The license renewal procedure for water well drillers includes a new requirement that well drillers obtain 6 continuing education credits each year by attending training sessions sponsored or sanctioned by the state engineer. This continuing education requirement has been

supported and requested by the Utah Groundwater Association for several years. The purpose of the program is to increase the level of craftsmanship of water well drillers in the state, increase compliance with the administrative rules and minimum construction standards, and improve protection of the groundwater resources of the state. Continuing education programs are also being implemented by several of the surrounding western states.

- **$** The rule establishes a continuing education committee to assist the state engineer in evaluating and approving classes for the continuing education program.
- **$** The new rule establishes a process for renewing a registration for a drill rig operators which is similar to the process for a licensed well driller except that the continuing education credits are optional for a drill rig operator.

Section R655-4-7. The Approval Process for Cathodic Protection Wells, Heating or Cooling Exchange Wells, and Monitor Wells

- **$** This section is added in the new administrative rules as information for the well driller to explain the application and approval process for cathodic protection wells, heating or cooling exchange wells, and monitor wells. These types of wells are not processed through the Division of Water Rights regular approval process and often drillers submit the applications for approval to drill.

Section R655-4-8. Minimum Well Construction Standards - General Requirements

- **$** The licensed driller must check the drilling location to see if it matches the approved Point of Diversion listed on the Start Card. Any discrepancy should be noted on the well log when submitted by the driller. The purpose of this requirement make sure the well is drilled at the approved location, and that potential interference with other nearby water rights does not occur.

Section R655-4-9. Well Drilling and Construction Requirements

- **$** In order to eliminate the possibly inferior casing being placed in a well, steel casing must meet or exceed common ANSI, AWWA, or ASTM specifications.
- **$** PVC screen/casing less than 4.5 inches outside diameter must meet or exceed SDR 21 or Schedule 40 wall thickness specifications. PVC screen/casing equal to or greater than 4.5 inches outside diameter must meet or exceed SDR 17 or Schedule 80 wall thickness specifications. Previously, SDR 21 casing was acceptable, however, incidents of casing collapse and cracking prompted these changes.
- **$** The maximum depth at which plastic well casing can be placed must conform with the requirements and limitations of ASTM Standard F480. This standard provides guidance for PVC casing depth depending on directional pressures inside and outside of the well casing.
- **$** Require that a steel protective casing extending at least 2.5 feet in depth and 18 inches above ground be placed around PVC well casing and sealed. PVC wells tend to be damaged by bumping, freezing, or ultraviolet radiation when left exposed at the surface.
- **$** Prohibit driving plastic or non-metallic casing.
- **$** The surface seal rules were vague and difficult to interpret in the existing rules, and due to this, some surface seals were not adequate. This allowed for surface contamination to enter the well and contaminate the aquifer and well water. The surface seal rule was restructured so that it was clear and concise, all drillers were installing an equally acceptable surface seal. In addition, given the increased possibility of contamination of drinking water aquifers with

increased development, the surface seal depth was increased from 18 feet to 30 feet. A 2 inch annular seal to a depth of at least 30 feet is required on all wells and with all drilling methods. Seal materials must consist of neat cement grout, sand cement grout, high solids bentonite grout, or unhydrated bentonite as defined in Section R655-4-2. Hydrated cement or bentonite grout must be placed from the bottom up to ensure a continuous seal with out bridging or segregation. The use of drilling bentonite and cuttings for surface seal is prohibited due to the inferior, unknown, or unpredictable sealing properties of these materials. In order to reduce bridging in the annulus, unhydrated bentonite must not be gravity placed below a depth of 50 feet. Temporary conductor casing used to facilitate the installation of the surface seal must be removed upon completion of the well and sealing, or it must be perforated and the seal materials placed with pressure. The annular space for the filter pack and/or surface seal interval should be estimated and an equal volume of filter or seal material installed.

- **$** A sounding device or other means should be used when placing filter material or unhydrated bentonite to ensure that bridging does not occur.
- **$** If a gravel feed pipe is installed in the annular space between the well casing and borehole wall, the annular space shall be increased to accommodate seal placement around the pipe.
- **$** All wells designed for water production must be disinfected prior to completion of work and removing drill rig in order to destroy bacteria or other organic contamination introduced during the drilling process.
- **$** Explosive shot perforators can be used in the well casing if used according to specifications.
- **$** Require drillers to secure unattended wells or boreholes so that debris, children, or animals cannot enter the well.
- **$** The special standard which allowed 0.188 inch wall thickness steel casing to be installed in certain sections of Hydrologic Areas 71, 73, 75, and 77 has been eliminated. These areas must now comply with the casing standards defined in R655-4-9-2. A valid reason for the special casing exemption could not be determined.
- **$** Hydraulic fracturing is acceptable as long as the well casing is not pressurized. Equipment shall be properly disinfected. Hydraulic fracturing information shall be noted on the well log.
- **$** The well shall be properly developed upon completion and a test performed to determine the minimum acceptable well yield. A static water level measurement shall also be taken. This information must be noted on the well log. This information is critical for the owner to determine proper pump size and long term yield of the well, and it is important information that can be used to characterize local and regional groundwater flow patterns.

Section R655-4-10: Special Wells

- **$** This is a new section that was created in the construction standard section of the rules. Items in this section were moved from Sections 1 and 13 of the existing rules.
- **$** For cathodic protection wells: 1) a surface seal must be installed; 2) separate aquifers must be sealed; 3) fill materials must be clean and contaminant free; 4) casing and pipe must follow well specifications; and 5) the casing must be at least 2-inches diameter to facilitate abandonment.

Section R655-4-11: Deepening, Rehabilitation, and Renovation

- **$** Section number changed from 9 to 11.
- **$** In order to ensure that the well the well is not contaminated or damaged during cleaning or repair work, several requirements were added including : 1) clean and disinfected tools must

be used; 2) tools should be used properly to not damage the well; 3) the surface seal must be replaced if damaged; 4) Debris, sediment, or other material must be removed from the well and aquifer after work; 5) chemicals designed to rehabilitate a well must be designed for that purpose and used according to manufacturer=s recommendations; 6) a well drillers license is required; and 7) the well must be disinfected following work on the well.

Section R655-4-12: Abandonment of Wells

- **$** A temporarily abandoned well must have a surface seal. The well and aquifer can easily be contaminated during the 90 day temporary abandonment period.
- **$** Prior to abandoning a well, a licensed driller must notify the State Engineer=s office and submit an official well abandonment form after completion of abandonment.
- **$** Abandonment materials can include neat cement grout, sand cement grout, bentonite grout, or unhydrated bentonite. Other sealing materials or additives must be approved by the State Engineer.
- **$** Prior to well abandonment, debris such as pumps, cable, and piping must be removed from the well to the extent possible.
- **$** The approximate volume of material required to abandon a well must be calculated prior to abandonment.

Section R655-4-13. Monitor Well Construction Standards

- **$** Restricted the placement of screens or perforations across multiple water bearing zones or aquifers to guard against cross contamination and commingling. If nested wells are installed in the same borehole, the annular space between the screened or perforated intervals must be sealed. Monitor well casing or screen must meet ASTM standards, or at least consists of 304 or 316 stainless steel, Teflon, or Schedule 40 PVC.
- **$** The gravel/filter pack must meet requirements of Section R655-4-9.5.2. Monitor well gravel/filter pack does not need to be disinfected. The gravel/filter pack must be placed to avoid bridging and voids.
- **$** A surface seal must be placed in accordance with Section R655-4-9.5.2. A minimum surface seal depth is not designated. Fine sand or unhydrated bentonite must be placed above the gravel/filter pack prior to grouting to avoid penetration of the grout into the filter and well intakes.
- **$** Drillers must properly dispose of drill cuttings, water, and other investigation derived wastes in accordance with state and federal guidelines.
- **$** If the monitor well is steel, a water resistant, locking cap must be installed on the casing above ground surface. If the monitor well is PVC or Teflon with an above ground completion, a steel protective casing must be placed around the plastic casing at the surface. The protective casing must have a locking cap, and the well casing must have a water tight cap. If the above ground completion is in a high traffic area, steel posts and a concrete pad should be installed around the well. If the well is completed flush with the ground surface, a lockable water tight cap must be installed in the well casing. A metal flush-mount vault must be installed around the well at the surface and be equipped with a removable water tight lid.
- **$** Monitor well that are 30 feet or deeper must be abandoned in accordance with Section R655-4-12